figures of the period from July 15,2001 to 31.12.2001 with corresponding period of year 2002 indicate only a marginal decline in overall terrorist related incidents from 2228 to 2014.

**Research and Development Projects Undertaken by NMDC**

347. SHRI K. RAMA MOHANA RAO: Will the Minister of MINES be pleased to state:

(a) the details of R&D projects undertaken by the National Mineral Development Corporation last year;

(b) the total amount that has been spent by the NMDC on R&D during the last five years, year-wise;

(c) whether the Corporation is having a scheme of additional modernisation and replacement; and

(d) if so, details of the above scheme including sums earmarked and objectives of the schemes?

THE MINISTER OF STATE OF THE MINISTRY OF MINES (SHRI RAMESH BAIS): (a) As reported by Ministry of Steel, besides the on going projects, the R&D centre of National Mineral Development Corporation (NMDC) has undertaken development project for preparation of Nano-Crystalline powder from Blue Dust. The salient features of the project, its application, market demand etc. are as under:-

(i) Application areas: Magnetic materials, multilayered, multifunctional coatings, Optic electronics and manufacture of Semi Conductors.

(ii) Potential Customers: USA (Department of Defence, IBM, INTEL, etc.), Japan (Sony, Hitachi, Toshiba etc.), Sweden and Germany.

(iii) Market Demand and Price: 1000T, US $ 200-350 per kg.

(b) Total R&D expenditure incurred by NMDC for the last five years is as follows:

| Year | R&D Expenditure (Rs. in Lakhs) |
|---|---|
| 1997-98 | 486.49 |
| 1998-99 | 471.62 |
| 1999-00 | 539.63 |
| 2000-01 | 564.17 |
| 2001-02 | 694.52 |

(c) Under additional modernization activity, the company has entered into technical collaborations with Moscow State Institute of Steel and Alloys (MISA) for undertaking development work relating to preparation of Nano Crystalline powder from Blue Dust. Nano Crystalline Material is considered as material for future. NMDC has a procedure for periodical replacements of obsolete equipment and up-gradation of the facilities, so that R&D centre remains a leader, in the competitive world globally.

(d) The objective of the collaborative work is development of value added products from Blue Dust, to create more avenues for utilization and consumption of Blue Dust at its Bailadaila Mines (High Purity Iron Ore Fines are generally called Blue Dust). On 22nd March, 2003 NMDC has signed a MOU with MISA, for technical collaboration for undertaking development work relating to preparation of Nano Crystalline powder from Blue Dust.

**Cost of Alumina Produced by NALCO**

348. SHRI RAMACHANDRA KHUNITA: Will the Minister of MINES be pleased to state:

(a) whether it is a fact that the cost of alumina produced by NALCO is the lowest in the world;

(b) if so, the details thereof; and

(c) how many mines have been given to NALCO and their total deposit of bauxite alongwith its quality?

THE MINISTER OF STATE IN THE MINISTRY OF MINES (SHRI RAMESH BAIS): (a) and (b) The cost of calcined alumina produced by